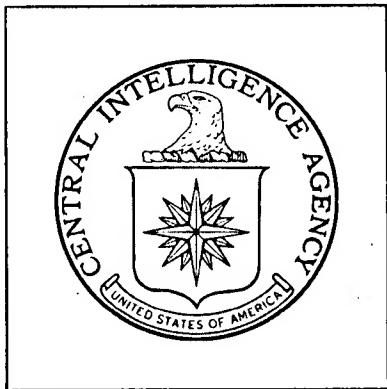


Top Secret



**Industrial Facilities
(Non-Military)**

**DIRECTORATE OF
INTELLIGENCE**

Basic Imagery Interpretation Report

**Aoji Ri Synthetic Petroleum Plant Chosen
Kyonghung-up, North Korea**



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DATE JUNE 1969

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CENTRAL INTELLIGENCE AGENCY
 Directorate of Intelligence
 Imagery Analysis Service

RCS - 13/0236/69

INSTALLATION OR ACTIVITY NAME		COUNTRY
Aoji Ri Synthetic Petroleum Plant Chosen		KN
UTM COORDINATES	GEOGRAPHIC COORDINATES	WAC-PIC Nc25X1
52TFC112090	42-31-12N 130-21-01E	0290-172
MAP REFERENCE		
15th RTS. USATC 200, Sheet M0290-10HL, 4th ed., July 1967, Scale 1:200,000 (SECRET)		
LATEST IMAGERY USED		NEGATION DATE (If required)
		Not Required

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ABSTRACT

This report provides a detailed imagery-derived analysis of the Aoji Ri Synthetic Petroleum Plant in North Korea, from December 1962 to November 1968.

This plant was complete when first seen in December 1962. It appeared to be in operation on all subsequent coverage, and no significant changes have been made to it since that time. The plant products are synthetic oil and refined petroleum products, primary gasoline and diesel oil.

This report includes a detailed line drawing, a photograph of the plant, a construction chronology, and reference data.

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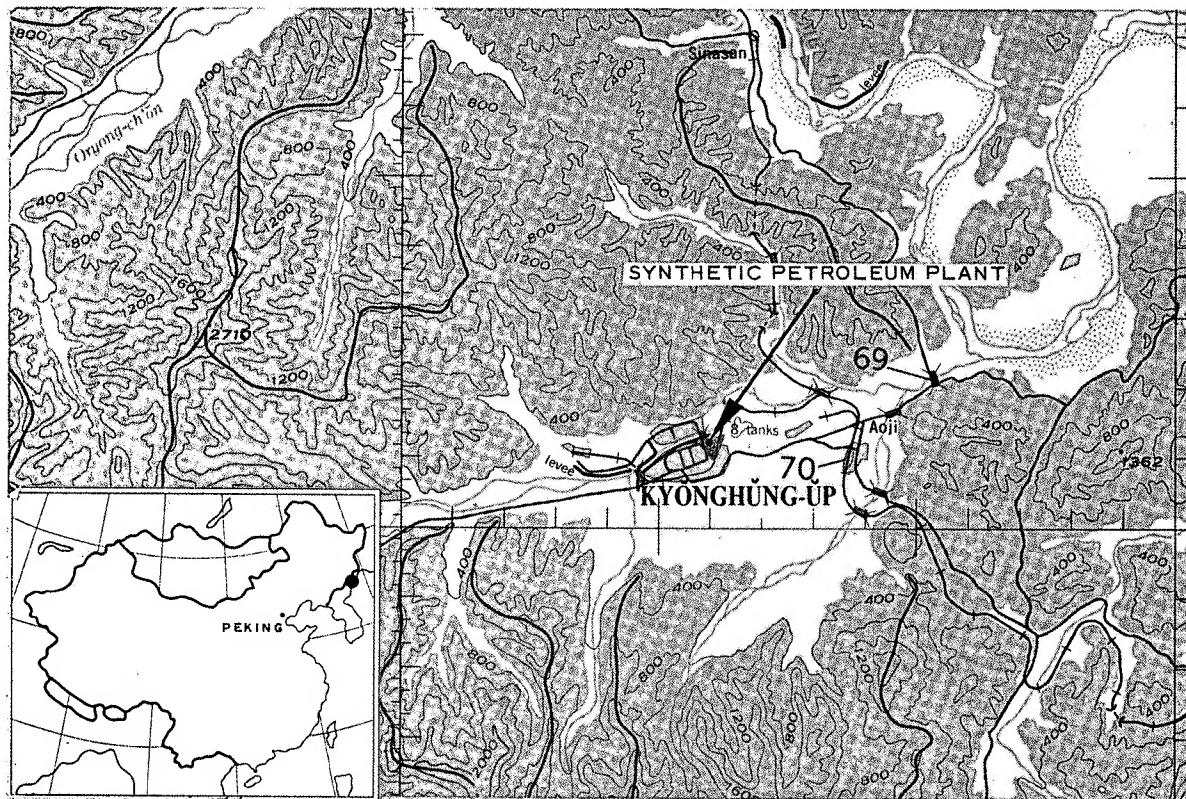


FIGURE 1. LOCATION MAP

INTRODUCTION

The Aoji Ri Synthetic Petroleum Plant Chosen is located 2 nautical miles (nm) west of Aoji on the eastern edge of Kyonghung-up. The plant is situated in a mountainous area 4 nm from the Chinese border. The Aoji Ri Thermal Power Plant [redacted], which furnishes electric power for the synthetic petroleum plant, is located immediately south of the plant. Two coal mines are located immediately south and east of the plant. Collateral information concerning the synthetic petroleum plant has varied greatly. Early information stated that synthetic oil and petroleum products were produced here from coal gas. More recent information suggests that methanol, ammonia and urea are being produced instead. The photographic signatures indicate that the plant produces synthetic petroleum products, with ammonia and possibly methanol and urea among its by-products.

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TOP SECRET RUFF**BASIC DESCRIPTION**Physical Features

The synthetic petroleum plant occupies an irregularly shaped area which measures approximately 3,500 by 2,000 feet and contains approximately 160 acres. No security measures are evident. The plant is served by a good all-weather road system and by a rail spur from the main line between Namyang and Hongui.

This plant produces synthetic petroleum products utilizing the Berguis Process. In general, the plant layout and process facilities, including the gas generation plant, the low temperature carbonization plant, and the air separation plant are similar to older plants seen in eastern Europe. The location of the plant near coal mines and adjacent to a thermal electric power plant is also consistent with what was seen in eastern Europe.

Operational Functions

The major products of this plant are synthetic oil and refined petroleum products, primarily gasoline and diesel oil. It is possible that methanol is produced and the facilities are not recognizable on available photography. The feed materials necessary for its production (hydrogen and carbon dioxide/carbon monoxide) are available in quantity from the gas production area (Area A, Figure 3). Limited amounts of ammonia are produced as a by-product of the low temperature carbonization plant (Area C). In addition, urea could be produced in small quantities, since the feed materials (ammonia and carbon dioxide) are available. Other by-products produced are coke, benzol, oxygen, nitrogen and carbon dioxide.

In general the production flow is as follows. Coal from the mining area (Area D) is made into briquettes. These are then heated at a low temperature in retorts (Item 12, Area C) designed to produce volatiles containing the highest possible proportion of tar. Hydrogen gas, produced in the gas production area, and tar are forced under high pressure into stalls (Item 39, Area H). Heat is applied, and the resulting reaction produces lighter hydrocarbon fractions including gasoline. After the hydrogenation reaction is complete, a crane removes the stalls and places them on let-down stands. Here the temperature and pressure are gradually reduced and the material removed. The hydrogenated fractions are further processed in standard petroleum refining equipment (Area F).

Construction Chronology

The plant was complete and appeared to be in operation when first seen on small-scale coverage of December 1962. No changes in facilities have been noted, and the plant appeared to be in operation on all subsequent coverage.

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REFERENCES

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Maps

15 th RTS. US Air Target Chart 200, Sheet M0290-10HL, 4th Edition,
July 1967, Scale 1:200,000 (SECRET)

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Requirement

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